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10/748,398	12/30/2003	Barrett E. Cole	H0004257 (1100.1225101)	7564

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EXAMINER	
MUI, CHRISTINE T	
ART UNIT	**PAPER NUMBER**
1709	

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07/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/748,398	COLE ET AL.	
	Examiner	Art Unit	
	Christine T. Mui	1709	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-63* is/are pending in the application.

4a) Of the above claim(s) *38-63* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11 June 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-37, drawn to product, classified in class 436, subclass 172.

   II. Claims 38-63, drawn to process of using product, classified in class 422, subclass 82.07.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the process for using the product as claimed can be practiced with another materially different product .
The process as claimed can be performed by a particle detection system with an impedance particle detector and fluorescence detector. Providing detectors with a collection surface and substrates can be used with fluorescence, chemiluminescence, absorption or any other detection method.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

(a) the inventions have acquired a separate status in the art in view of their different classification;

(b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention.**

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be

treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

3. During a telephone conversation with Brian Tufte on 27 June 2007 a provisional election was made with traverse to prosecute the invention of Group 1, claims 1-26. Affirmation of this election must be made by applicant in replying to this Office action. Claims 38-63 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

5. Claim 25 is objected to because of the following informalities: In the first line of claim 25, PH should read pH. Appropriate correction is required.

Specification

6. The disclosure is objected to because of the following informalities: on page 5, line 4, in the instance where it reads "PH" should read "pH".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The instant claim states that the detector is configured to detect fluorescence while "being at least substantially blind." It is unclear to the examiner what is positively claimed.

9. Claims 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The instant claims state where "at least some of the pixels of the array." It is unclear to the examiner what encompasses "at least some" of the pixels are sensitive.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2, 7, 10, 13 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 6,614,215 to Wood (herein referred "Wood") in view of USP 4,926,679 to Dewhurst (herein referred "Dewhurst").

5. Regarding claims 1-2 and 7, the reference Wood discloses the claimed invention except for detecting particles of an aerosol. Wood discloses a particle detection system with an optically transmissive plate, particle concentrator, a disc that is optically coupled to an edge of a mount, sample collection on the surface, a light source and light detector (see abstract and column 3, lines 34-39). It is interpreted by the examiner that the particle concentrator is capable of providing a mass of sorted particles onto the collection surface for detection either it be aerosols or blood or yeast cells. Dewhurst teaches that it is known in the art to have an air sampler for the detection and collection of solid aerosol particulates in gas that is expelled on a sample collection surface (see column 3, lines 30-31 and 37-38). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the particle detector

system to detect particulates of aerosols rather than blood cells or yeast cells to determine the concentration of particulates in different size ranges.

6. Regarding claim 10, the reference Wood discloses the claimed invention except for detecting particles of an aerosol. Dewhurst discloses a sampler for the detection and collection of solid aerosol particulates on a sample collection surface (see column 3, lines 30-31 and 37-38). Wood discloses the system is operable at two or more fundamental light frequencies to observe fluorescence. The light source of the particle detection system can comprise at least one individual unit, which emits light at different frequencies (see column 1, lines 46-49). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the energy source that induces some excitation fluorescence where one skill in the art would be able to observe properties of certain materials at different wavelengths.

7. Regarding claim 13, the references Wood and Dewhurst disclose the claimed invention. Wood does not disclose the detection system to detect and collect aerosol particulates. Dewhurst discloses a sample for the detection and collection of aerosol particulates. Wood discloses the light detector that is substantially at right angles to the particle flow direction (see column 1, line 40-43). It would have been obvious to one having ordinary skill in the art at the time the invention was made to dispose the detector at right angles to the flow of particles as to not detect reflective energy from the source.

8. Regarding claim 22, the references Wood and Dewhurst disclose the claimed invention. Wood does not disclose the detection system to detect and collect aerosol

particulates. Dewhurst discloses a sample for the detection and collection of aerosol particulates. Wood discloses the particle detection system with a light source and light detector (see abstract). It is interpreted by the examiner that the light source and detector is controlled by a mechanism rather then by hand to minimize contamination with human touch.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wood and Dewhurst as applied to claim 2 above, and further in view of USP 6,238,085 to Higashi (herein referred "Higashi").

10. Regarding claim 3, the references Wood and Dewhurst disclose the claimed invention except for where the sample collection surface is at least partially thermally isolated from the substrate. Higashi teaches that it is known in the art to have a sensor with the active components in the sensor to be isolated from each other with dielectric layers (see column 2, line 13-16). It is interpreted by the examiner that the dielectric layers in the sensor are partially thermally isolated as there is a heater near the top surface of the microstructure. It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the particle analyzer with the collection surface thermally isolated from the substrate as to not over heat the aerosol particles if attempting to accentuate or kill specific bacteria or particulates.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Dewhurst and Higashi as applied to claim 3 above, and further in view of USP 5,992,215 to Caron (herein referred "Caron").

12. Regarding claim 4, the reference Wood, Dewhurst and Higashi disclose the claimed invention except for the temperature modifying means is coupled to the sample collection surface. Caron discloses a surface acoustic wave sensor where a piezoelectric substrate has a heater coupled to the surface of the device to permit control of the temperature (see abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the analyzer with the temperature adjusting means on the surface instantaneously heat the sample and its surroundings on the surface to create an equilibrium of the contents of the substrate.

13. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Dewhurst and Higashi as applied to claim 22 above, and further in view of Caron.

14. Regarding claim 23, the references Wood, Dewhurst and Higashi disclose the claimed invention except for where there is a controller is configured to control a temperature modifying means. Caron discloses a senor that is made of a piezoelectric substrate with a heater at the surface of the device to permit the control of the temperature (see abstract). The thermocouple on the surface, the heating element and a computer data acquisition system allows the temperature applied to the surface of the substrate to be controlled with high precision (see column 5, line 59-61). It would have

been obvious to one having ordinary skill in the art at the time the invention was made to construct the analyzer with a temperature controlling means to alter the temperature and heating of the species on the substrate with high precision to observe the effects of temperature on the sample.

15. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Dewhurst, Higashi and Caron as applied to claim 4 above, and further in view of USP 4,147,515 to Haas (herein referred "Haas").

16. Regarding claim 5, the references Wood, Dewhurst, Higashi and Caron disclose the claimed invention except where the temperature modifying comprises of a heating means. Haas teaches that it is known in the art to have an electro-chemical gas sensor with heating wire disposed in the insulating substrate to permit the control of the temperature of a film (see column 5, line 2-4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the temperature adjusting means of a heating means, especially a heating wire, instead of an open flame to preserve the analyzer so that it can be reused.

17. Regarding claim 6, the references Wood, Dewhurst, Higashi and Caron disclose the claimed invention except where the temperature modifying means comprises of a cooling means. Haas teaches that it is known in the art to have an electro-chemical gas sensor with a heating wire disposed in the substrate (see column 5, lines 2-4). It is interpreted by the examiner that since the wire is capable of being heated, it is inherent that the wire can also be cool if left unattended or turned off if connected to a controlling

means. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a temperature adjusting means in an analyzer to determine the temperature effects on particles, which can be heated then cooled.

18. Claims 8- 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood and Dewhurst as applied to claim 1 above, and further in view of USP 6,762,056 to Peeters (herein referred "Peeters").

19. Regarding claims 8 and 9, the references Wood and Dewhurst disclose the claimed invention except where the sample collection surface comprises of an adsorbent that is made of carbon nanotubes. Peeters teaches a method for discovering protein adsorption sites on a test surface that can be made by sputtering of nanometer-scale particles such as carbon nanotubes and fullerene spheres (see column 2, lines 55-67 and column 15, lines 18-27). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the sample collection surface made of an adsorbent material such as carbon nanotubes in order to provide a disordered surface of bumps and grooves to provide a random orientation and packing of microparticles, such as protein, on the surface.

20. Claims 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood and Dewhurst as applied to claim 1 above, and further in view of USP 5,674,698 to Zarling (herein referred "Zarling").

21. Regarding claim 11, the reference Wood and Dewhurst disclose the claimed invention except for an energy source lens to direct energy from the source to a portion of a sample collection surface. Zarling teaches an apparatus for performing sensitive detection of analytes by focusing an illumination source with a lens or other focusing mechanism to a small region of the sample (see column 33, line 62-63, Figure 1 and 2A (27)). It would have been obvious to one having ordinary skill in the art at the time invention was made to have the energy source directed at the sample be focused to a small region by a lens or other focusing mechanism to fluoresce the aerosol particles in one a particular region and leaving another region that is not fluoresced and used for comparison.

22. Regarding claim 14, the references Wood and Dewhurst discloses the claimed invention except for the detection lens to focus the induced fluorescence on the detector. Zarling teaches an apparatus for performing sensitive detection of analytes with a lens that collects the light emitted by the phosphor reporters onto a detector (see column 33, line 64-65, Figures 1 and 2A). It would have been obvious to one having ordinary skill in the art a the time the invention was made to have a lens detector to focus the light onto the detector to observe and concentrate the fluoresced light from the sample into one concentrated area rather than having in reflect everywhere.

23. Claims 15-16 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood and Dewhurst as applied to claim 1 above, and further in view of USP 5,771,094 to Carter (herein referred "Carter").

24. Regarding claims 15 and 16, the references Wood and Dewhurst disclose the claimed invention except where the detector is sensitive to a plurality of wavelengths and comprises of an array of pixels. Carter teaches pixel position to wavelength calibration function of film measurement devices that has a detector that has an array of multiple pixels that is able to provide measurements of a plurality of wavelengths (see column 2, lines 26-29). It would have been obvious to one having ordinary skill in the art at the time invention was made to have the detector comprising of a plurality of pixels that are also able to detect a plurality of wavelengths to increase observable band of wavelengths and appropriately mark the position of particles on the surface of the collection surface.

25. Regarding claim 19, the references Wood and Dewhurst disclose the claimed invention except where the detector comprises of pixels sensitive to ultraviolet and visible light. Carter teaches a measurement device with a detector with an array of multiple pixels that correspond to different wavelengths from light sources from a mercury lamp or laser. It is also suggested that light sources can also be in electromagnetic radiation in the visible, infrared and/or ultraviolet range or even radiation of wavelengths outside such ranges (see column 1, line 15-19 and column 8, lines 27-31). It is interpreted by the examiner that if the light sources are emitting ultraviolet and visible light, the detector is able to detect changes in wavelengths up to the light source wavelengths. It would have been obvious to one having ordinary skill in the art at the time invention was made to have a detector function in the ranges of ultraviolet and visible light to expand the measurable ranges of detection or analysis.

26. Regarding claims 20 and 21, the references Wood and Dewhurst disclose the claimed invention except where the pixels on the detector are in a linear pattern or a pair-wise fashion. Cater discloses a detector with an array of multiple pixels (see column 1, lines 17-18). It would have been obvious to one having ordinary skill in the art at the time the invention was made to change the orientation or randomness of the pixels on the detector to observe different fluorescing patterns of the bioparticles that are tested.

27. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood and Dewhurst as applied to claim1 above, and further in view of USP 5,520,881 to Koestler (herein referred "Koestler").

28. Regarding claims 24-25, the references Wood and Dewhurst disclose the claimed invention except for the analyzer comprising of a humidity controller and a pH controller. Koestler teaches that it is known in the art to provide an apparatus for eliminating microbial, fungal, and/or insect infestation utilizing argon in combination with altering the pH and humidity parameters (see column 5, lines 42-46). The apparatus has a treatment chamber which includes a temperature controller, relative humidity controller and pH controllers (see column 6, lines 10-11 and 25-26). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a test chamber around the particle analyzer with a temperature, humidity and pH controller to alter the parameters as needed when testing for the viability of particles

in the test chamber. The controllers allow full manipulation over conditions the samples are placed under for testing.

29. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wood and Dewhurst as applied to claim 1 above, and further in view of USP 4,651,010 to Javan (herein referred "Javan").

30. Regarding claim 26, the references Wood and Dewhurst disclose the claimed invention except for a chemical controller for adding chemicals to the surface of the sample collection area. Javan discloses a sensing system that provides a means for providing a chemical reactant to the substances to detect fluorescence at the wavelength of a laser light. The chemical reactants can be sprayed, projected or propelled onto the area that is to be examined onto a small unitary structure (see abstract, column 4, line 1-7). It is interpreted by the examiner if the system is capable of adding one chemical to a unitary structure for observation, the system is capable of adding multiple chemicals to the surface of a substrate to determine the effects of different additions of chemicals onto the area of interest. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a chemical controlling means to monitor the amount of chemicals that are added on the sampling surface and to add one or more chemicals to induce illumination of samples at particular wavelength of the laser light source to observe changes and the effect of chemical reactions on the collection surface.

31. Claims 27 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 4,147,515 to Haas (herein referred "Haas") in view of Caron.

32. Regarding claim 27, the reference Hass discloses the claimed invention except for a temperature adjusting means coupled to the surface collection surface. Hass discloses an electro-chemical gas sensor with a non-interacting substrate that supports a BaO film with interdigital probes embedded in it. A heating wire is disposed in the insulating substrate to permit control of the temperature of the BaO layer (see column 4, line 66-68 and column 5, lines 1-4, Figure 6). Caron discloses a sensor made of a piezoelectric substrate with a heater on the surface of the device to permit control of the substrate (see abstract, column 3, line 26-28). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the substrate with the heater on the surface of the substrate to precisely control the temperature while observing the effects of instantaneously heating and cooling of the temperature adjusting means.

33. Regarding claim 34, the references Hass and Caron disclose the claimed invention. Caron discloses a sensor with a heater on the surface of the substrate device. Haas discloses an electro-chemical gas sensor that has a heating wire disposed in the insulating substrate (see column 5, lines 2-4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to heat the substrate with a heating wire rather than an alternative heating means like an open flame to regulate the temperature with more control and preserve the sensor when heating to be made reusable.

34. Regarding claim 35, the reference Haas and Caron discloses the claimed invention. Caron does not disclose a thermoelectric cooling element in the substrate. Haas discloses a heating wire disposed in the insulating substrate that is able to heat the substrate as well as cool the substrate, when turned off (see column 5, lines 2-4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the substrate with a heating and cooling means in order to control the temperature of the substrate by a means for altering the temperature.

35. Claims 28-30 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haas and Caron as applied to claim 27 above, and further in view of Higashi.

36. Regarding claim 28, the references Haas and Caron disclose the claimed invention except for where the sample collection surface is partially thermally isolated from the substrate. Higashi teaches a sensor with the active components in the sensor to be isolated from each other with dielectric layers (see column 2, line 13-16). It is interpreted by the examiner that the dielectric layers in the sensor are partially thermally isolated as there is a heater near the top surface of the microstructure. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the substrate and collection sample surface to be thermally isolated as to not over heat the sample on the surface while testing for multiple bioparticles of interest.

37. Regarding claims 29 and 30, the references Haas and Caron disclose the claimed invention except for where the substrate includes a cavity and the sample

collection surface suspended over the cavity. Higashi teaches a sensor with a laminated thin film microstructure suspended over an etched pit in silicon (see column 2, line 8-10, Figure 1 and 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have sample collection surface suspended over a cavity in order to allow an exposed and non-exposed part of the substrate that is subjected to a fluorescent energy.

38. Regarding claim 32, the references Haas, Caron and Higashi discloses the claimed invention. Caron and Higashi do not disclose where a temperature adjusting means is adjacent or within the support member. Hass discloses an electro-chemical gas sensor where a heating wire is disposed in the insulating substrate to permit the control of the temperature of a film (see column 5, lines 2-4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the heating means of the sensor within the device in order to heat the device from the inside to obtain an even heating surface from within.

39. Regarding claim 33, the references Hass, Caron, and Higashi disclose the claimed invention. Hass and Caron do not disclose where the substrate is made of a silicon wafer. Higashi discloses a sensor that is made of a silicon substrate (see column 2, line 19). It is interpreted by the examiner that a silicon substrate can be in the form of a silicon wafer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the substrate from a silicon substrate to have high sensitivity to light or heat and a low thermal mass.

40. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haas, Caron and Higashi as applied to claim30 above, and further in view of USP 6,388,789 to Bernstein (herein referred "Bernstein").

41. Regarding claim 31, the references Haas, Caron and Higashi disclose the claimed invention except for where the support member comprises of one or more legs. Bernstein teaches a micro-electro-mechanical-systems microdevice that has a plate that is suspended by tow tortional flexures or bases (see column 1, lines 17-19 and column 5, lines 17 and 22, Figure 1A to 1C). It would have been obvious to one having ordinary skill in the art at the time the invention was made to suspend the support member is suspended over the cavity by one or more legs to provide support to the member so the member does not fall within the cavity.

42. Claims 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haas and Caron as applied to claim 27 above, and further in view of Peeters. Regarding claim 36, the references Haas and Caron disclose the claimed invention except for where the sample collection surface is an adsorbate. Peeters teaches that it is known in the art to discover protein adsorption sites on a test surface where the surface topology is comprised of a random distribution of randomly shaped features (see column 2, lines 54-67). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a test surface made of an adsorbate material where protein molecules or aerosol gas particles are adsorbed to adsorption sites to detect the presence of particular molecules.

Regarding claim 37, the reference Haas and Caron discloses the claimed invention except where the sample collection surface comprise of carbon nanotubes. Peeters teaches that it is known in the art that a method for fabricating test surfaces for adsorbing protein molecules can be made by sputtering nanometer-scale particles onto the test surface substrate. The nanometer-scale rods or spheres of carbon such as carbon nanotubes and fullerene can be sputtered onto the test surface substrate and resulting in a disordered surface of bumps and grooves that are in a random orientation and packing of microparticles on the substrate (see column 15, lines 18-26). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the collection substrate surface made of carbon nanotubes where there are disordered grooves and bumps in the shape of rods or spheres where the microparticles can be randomly oriented and packed on the substrate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine T. Mui whose telephone number is (571) 270-3243. The examiner can normally be reached on Monday-Friday 8-5; Alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CTM

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